VERSION WITH MARKINGS TO SHOW CHANGES MADE

In showing the changes, deleted material is bracketed and inserted material is underlined.

Claims:

1. (Amended Three Times) A method for the bioproduction of a C_6 to C_{22} mono- or di-carboxylic acid comprising

a) contacting, under aerobic conditions, a transformed *Pichia pastoris* [characterized by] comprising a genetically-engineered alkane hydroxylating activity comprising

i) at least one copy of a foreign gene encoding cytochrome P450 monooxygenase; and, optionally,

ii) at least one copy of a foreign gene encoding cytochrome P450 reductase,

each gene operably linked to a *Pichia pastoris* Aox 1 promoter such that alkane hydroxylating activity is enhanced upon contact with at least one C_6 to C_{22} straight chain hydrocarbon; and

b) recovering the C_6 to C_{22} mono- and di-carboxylic acids.

6. (Amended Two Times) A transformed *Pichia pastoris* strain [characterized by] comprising an enhanced alkane hydroxylating activity and comprising,

a) at least one DNA fragment from *Candida maltosa* ATCC 90677 selected from the group of DNA fragments encoding cytochrome P450 monooxygenase Alk1-A (SEQ ID NO:35) and cytochrome P450 monooxygenase Alk3-A (SEQ ID NO:37); and, optionally,

b) at least one DNA fragment from *Candida maltosa* ATCC 90677 encoding cytochrome P450 reductase,

each DNA fragment operably linked to suitable regulatory elements such that alkane hydroxylating activity is enhanced upon contact with at least one C_6 to C_{22} straight chain hydrocarbon.

8. (Amended Two Times) A method for the enhanced bioproduction of C_6 to C_{22} mono- and di-carboxylic acids comprising

a) contacting, under aerobic conditions, a transformed *Candida maltosa* [characterized by] comprising a genetically-engineered, enhanced alkane hydroxylating activity with at least one C_6 to C_{22} straight chain hydrocarbon, wherein said alkane hydroxylating activity arises from

i) at least one additional copy of the genes encoding cytochrome P450 monooxygenase selected from the group consisting of Alk1-A (D12475 (SEQ ID NO:35)), Alk2-A (X55881 (SEQ ID NO:36)), Alk3-A (X55881 (SEQ ID NO:37)), Alk4-A (D12716

SEQ ID NO:38)), Alk5-A (D12717 (SEQ ID NO:39)), Alk6-A (D12718 (SEQ ID NO:40)), Alk7 (D12719 (SEQ ID NO:41)), and Alk8 (D12719 (SEQ ID NO:42)); or

ii) at least one additional copy of the gene encoding cytochrome P450 reductase (D25327); or

iii) at least one additional copy of both the genes of i) and ii); and

b) recovering the C_6 to C_{22} mono- and di-carboxylic acids.

9. (Amended Two Times) The method of Claim 8 wherein

[a) the genetically-engineered, enhanced alkane hydroxylating activity arises from

i) at least one additional copy of the genes encoding cytochrome P450 monooxygenase selected from the group consisting of Alk1-A (D12475 (SEQ ID NO:35)), Alk2-A (X55881 (SEQ ID NO:36)), Alk3-A (X55881 (SEQ ID NO:37)), Alk4-A (D12716 SEQ ID NO:38)), Alk5-A (D12717 (SEQ ID NO:39)), Alk6-A (D12718 (SEQ ID NO:40)), Alk7 (D12719 (SEQ ID NO:41)), and Alk8 (D12719 (SEQ ID NO:42)); or

ii) at least one additional copy of the gene encoding cytochrome P450 reductase (D25327); or

iii) at least one additional copy of both the genes of i) and ii);]

[b] a) the at least one C_6 to C_{22} straight chain hydrocarbon is dodecane; and

[c] b) the product recovered is dodecanedioic acid.

14. (Amended One Time) A method for the enhanced bioproduction of C_6 to C_{22} mono- and di-carboxylic acids comprising

a) contacting, under aerobic conditions, transformed *Candida maltosa* [characterized by] comprising a genetically-engineered, blocked β-oxidation pathway with at least one C_6 to C_{22} straight chain hydrocarbon, wherein the β-oxidation pathway is functionally blocked by disruption of both POX4 genes encoding acyl-CoA oxidase; and

b) recovering the C_6 to C_{22} mono- and di-carboxylic acids.

[15. The method of Claim 14 wherein the transformed *Candida maltosa* β-oxidation pathway is functionally blocked by disruption of both POX4 genes encoding acyl-CoA oxidase.]

16. (Amended Two Times) A transformed *Candida maltosa* [characterized by] comprising disruption of no more than both POX4 genes encoding acyl-CoA oxidase whereby a β-oxidation pathway is functionally blocked.

17. (Amended One Time) A transformed *Candida maltosa* [characterized by] comprising a β-oxidation pathway functionally blocked by disruption of both POX4 genes encoding acyl-CoA oxidase using a single URA3 selectable marker.

19. (Amended One Time) A method for the enhanced bioproduction of C_6 to C_{22} mono- and di-carboxylic acids comprising

a) contacting, under aerobic conditions, transformed *Candida maltosa* [characterized by] comprising,

i) a genetically-engineered, enhanced alkane hydroxylating activity, wherein the enhanced alkane hydroxylating activity arises from

1) at least one additional copy of a gene encoding cytochrome P450 monooxygenase selected from the group consisting of Alk1-A (D12475 (SEQ ID NO:35)), Alk2-A (X55881 (SEQ ID NO:36)), Alk3-A (X55881 (SEQ ID NO:37)), Alk4-A (D12716 (SEQ ID NO:38)), Alk5-A (D12717 (SEQ ID NO:39)), Alk6-A (D12718 (SEQ ID NO:40)), Alk7 (D12719 (SEQ ID NO:41)), and Alk8 (D12719 (SEQ ID NO:42)), or

2) at least one additional copy of a gene encoding cytochrome P450 reductase (D25327 (SEQ ID NO:43)), or

3) at least one additional copy of both the genes i) and ii), and

ii) a genetically-engineered, blocked β-oxidation pathway, [with at least one C_6 to C_{22} straight chain hydrocarbon] wherein the β-oxidation pathway is functionally blocked by disruption of both POX4 genes encoding acyl-CoA oxidase; and

b) recovering the C_6 to C_{22} mono- and di-carboxylic acids.

25. (Amended One Time) [A] An isolated DNA fragment comprising a) a first *Candida maltosa* promoter operably linked to a gene encoding a *Candida maltosa* cytochrome P450 monooxygenase and b) a second *Candida maltosa* promoter operably linked to a gene encoding a *Candida maltosa* cytochrome P450 reductase.

26. (Amended Two Times) [A] An isolated DNA fragment comprising a) a first *Candida maltosa* PGK promoter which is operably linked to a gene encoding cytochrome P450 monooxygenase selected from the group consisting of Alk1-A (D12475 (SEQ ID NO:35)), Alk2-A (X55881 (SEQ ID NO:36)), Alk3-A (X55881 (SEQ ID NO:37)), Alk4-A (D12716 (SEQ ID NO:38)), Alk5-A (D12717 (SEQ ID NO:39)), Alk6-A (D12718 (SEQ ID NO:40)), Alk7 (D12719 (SEQ ID NO:41), and Alk8 (D12719 (SEQ ID NO:42)) and b) a second *Candida maltosa* PGK promoter operably linked to a gene encoding a *Candida maltosa* cytochrome P450 reductase.